

## **RESPONSE TO OFFICE ACTION**

### **A. Status of the Claims**

Claims 1-24 were pending at the time of the Action. Claims 1-12 were withdrawn. Claims 13-24 are amended herein. Support for the amendments can be found, at least, in the claims as filed and page 57, line 22 through page 58, line 3. No new matter is added.

### **B. Specification Objections**

The Action notes that the specification contains a number of trademarks and requests that they be written in all capital letters. While the Action has not specifically identified where the specification contains the trademarks, Applicants have identified two trademark terms, DIAZINON and MALATHION, on page 26 and amended the specification to capitalize these trademark terms.

Also, the Action requires that the trademark terms be accompanied by the generic terminology. In response, Applicants have amended the specification to accompany the above-identified trademark terms by their generic chemical names. No new matter is added.

### **C. Claim Objections**

(1) The Action objects to claims 14-24 as not having a comma before the term “wherein.” Applicants have amended the claims to include the comma, and therefore withdrawal of the objection is respectfully requested.

(2) The Action objects to claims 19 and 22 as containing the misspelled term “sRNAi.” In response, Applicants note that the term “sRNAi” is well known in the art and is used in the specification and thus nothing is unclear in the recitation of the term in the claims. For example, a search for the term using the GOOGLE search engine reveals more than 3,200

different hits using the term. The claim terms are thus clear and withdrawal of the rejection is respectfully requested.

(3) The Action objects to claims 19 and 22 for containing “or” in line 5. Applicants have amended these claims and the amended claims do not contain “or” in line 5. This objection is therefore believed moot and withdrawal thereof is respectfully requested.

(4) The Action objects to claims 20 and 23 for containing “and” in line 2. In response, Applicants have amended these claims to remove “and” in line 2, and therefore withdrawal of the objection is respectfully requested.

(5) The Action objects to claims 21 and 24 for containing the terms “and/or” and “and” in lines 4 and 5, respectively. Applicants have amended these claims and the amended claims do not contain these terms. This objection is therefore believed moot and withdrawal thereof is respectfully requested.

(6) The Action objects to claims 21 and 24 for containing inconsistent plural recitation of the phrase “a biological/fermentation products” in part (h). In response, Applicants have amended these claims to remove the plurality, and therefore withdrawal of the objection is respectfully requested.

**D. Rejections Under 35 U.S.C. § 112, Second Paragraph**

(1) The Action rejects claims 21 and 24 as being indefinite for reciting the term “and” after part (i). Specifically, the Action finds that the presence of “and” after part (i) makes the claims unclear whether the seed blend must be coated with all agents recited in parts (a) through (j). In response, Applicants have amended these claims to confirm to proper alternative format, and thus the rejection is believed moot and withdrawal thereof is respectfully requested.

(2) The Action rejects claims 21 and 24 as being indefinite in part (f) for reciting the broad group “diacylhydrazines” and its narrower limitation “halofenozide.” Applicants have amended the claims to not contain the term “including.” This rejection is therefore believed moot and withdrawal thereof is respectfully requested.

(3) The Action rejects claims 21 and 24 for containing trademarked terms. Applicants have amended the claims to remove the trademark terms, and therefore withdrawal of the rejection is respectfully requested.

**E. Rejection Under 35 U.S.C. § 102(b)**

The Action rejects claims 13-24 under 35 U.S.C. § 102(b) as anticipated by Lambert *et al.*, (*Proc. Beltwide Cotton Conf.*, 1996, vol. 2, pages 931-935) (“Lambert”). In particular, the Action asserts that Lambert discloses cotton seed-blends having both *Bt* transgenic seeds and non-transgenic seeds. Thus, the Action finds that Lambert anticipates the claimed seed blend comprising transgenic crop seed and non-transgenic refuge seed.

Applicants note in response that claim 13 has been amended and is directed to a transgenic refuge seed comprising “a refuge seed and a first transgenic crop seed comprising a first transgene in a uniform mixture... wherein said refuge seed comprises a second transgene that is different from the first transgene.” These elements are not taught or suggested by the cited reference. For example, the Action relied on page 932, column 1, first paragraph, lines 7-10 of Lambert for the rejection, which states that:

The cotton seed blends included: 1)100% *B.t.*:0% non-*B.t.*-TAN (treated as needed with Karate™ for caterpillar control); 2) 100% *B.t.*:0% non-*B.t.*; 3) 85% *B.t.*:15% non-*B.t.*; 4) 75% *B.t.*:25% non-*B.t.*; 5) 0% *B.t.*:100% non-*B.t.*

Lambert, page 932, column 1, first paragraph, lines 7-10. Accordingly, the refuge seed in Lambert is a non-*B.t.* seed and does not include a transgenic refuge seed.

As such, the rejection is believed moot and withdrawal thereof is respectfully requested.

**F. Rejection Under 35 U.S.C. §103**

**1. The Rejection Over Lambert *et al* in view of Turnblad *et al*.**

The Action rejects claims 13-24 under 35 U.S.C. § 103(a) as being obvious over Lambert in view of Turnblad *et al*. (U.S. Patent No. 5,849,320) (“Turnblad”). In particular, it is asserted that Lambert discloses cotton seed-blends having both *Bt* transgenic seeds and non-transgenic seeds and, although Lambert does not disclose treated seeds in seed-blends, Turnblad teaches treating seeds with insecticides including chloronicotinyl imidacloprid. Thus, the Action finds that it would have been obvious to combine the references to arrive at the invention. Applicants respectfully traverse.

As discussed above, claim 13 is directed to a transgenic refuge seed comprising “a refuge seed and a first transgenic crop seed comprising a first transgene in a uniform mixture... wherein said refuge seed comprises a second transgene that is different from the first transgene.” Also, as explained above, Lambert’s refuge seed is a non-transgenic seed and nowhere does Lambert or the art generally teach or suggest a transgenic refuge seed having a second transgene for a seed blend. Specifically, Lambert does not teach whether a transgenic crop seed can be mixed with a transgenic refuge seed, and whether the transgenes of crop and refuge seeds are different.

In fact, Lambert teaches away from the claimed invention. For example, Lambert at page 932, column 2, last paragraph, states that:

The results of this field study were similar in many respects to those obtained in field studies conducted earlier...where various *B.t.* seed blends (75-100% *B.t.* seed) ***were damaged by bollworm to the extent that significant yield reductions (ca. 10-20 %) resulted.***

(emphasis added). At page 933, column 2, paragraphs 1 and 2, Lambert states that:

In this experiment the treatments incorporating blends of *B.t.* and non-*B.t.* seed (85:15 and 75:25) sustained *too much fruit damage and yield loss for the blended seed concept to be practical...* Thus, it is *likely that refugia will have to be accomplished through some means other than the blended seed strategy....*

(emphasis added).

Accordingly, if anything, Lambert recommends avoiding seed blends for pest resistance management. Lambert therefore in no way teaches or suggests the claimed invention, and in fact teaches away from it.

Turnblad is not asserted to and does not cure the defects in Lambert reference discussed above. Rather, Turnblad is asserted to teach treating seeds with insecticides. In particular, although Turnblad generally relates to coating seeds with insecticides, Turnblad does not relate to any seed blend and thus does not teach the claimed seed blend that has a transgenic refuge seed.

As such, the rejection is believed moot and thus withdrawal of the rejection is respectfully requested.

## **2. The Rejection Over Kennedy *et al* in view of Turnblad *et al*.**

The Action rejects claims 13-24 under 35 U.S.C. § 103(a) as being obvious over Kennedy *et al.* (*J. Econ. Entomol.* 1995, vol. 88, lines 454-460) (“Kennedy”) in view of Turnblad. The Action asserts that Kennedy teaches seed blends and expression of “multiple toxins” and Turnblad teaches seed treatments, and thus the Action finds that it would have been obvious to combine the references to arrive at the invention. Applicants respectfully traverse.

Neither Kennedy nor Turnblad teaches or suggests a seed blend having a transgenic seed that can serve as a refuge. In particular, the Action relied upon page 459, left column, second paragraph of the Kennedy reference to assert that seed blends are taught, including those

comprising a second transgene. However, this relied upon portion relates to strategies for managing pest resistance to *Bacillus thuringiensis*, stating the following:

Resistance management technologies for *B. thuringiensis* products should be designed to minimize their short-term disadvantages relative to using the products without regard for resistance management. Further, they should be simple to deploy, compatible with crop production and farming practices, and unmodifiable in their essential features (e.g., prepackaged seed mixtures of resistant and susceptible plants, ***or*** expression of multiple toxins), or sufficiently robust that they can withstand modification without losing effectiveness.

Kennedy, page 459, column 1, paragraph 2. (emphasis added)

Accordingly, the cited portion of Kennedy relates, if anything, to managing pest resistance either by the use of “prepackaged seed mixtures of resistant and susceptible plants,” or alternatively, by the use of “expression of multiple toxins.” Specifically, the term “or” between these option makes clear to one of skill in the art that they are alternatives. In contrast, as explained above, the claimed invention is directed to a seed blend that has a transgenic crop seed and a transgenic refuge seed, in which the refuge seed has a “second transgene that is different from the first transgene” of the transgenic crop seed.

It must also be noted that the Kennedy reference is purely a conceptual paper that does not discuss any of the technical issues as to why certain strategies may or may not work. One of skill in the art would have no expectations regarding any given strategy discussed in this paper. More significantly, the Kennedy reference predates the Lambert paper, which specifically states that “blends of *B.t.* and non-*B.t.* seed (85:15 and 75:25) sustained ***too much fruit damage and yield loss for the blended seed concept to be practical...*** [t]hus, it is ***likely that refugia will have to be accomplished through some means other than the blended seed strategy.***” *Id.* Therefore, Kennedy taken alone or with any other information in the art in no way teaches or suggests the claimed invention.

Turnblad is not asserted to and does not cure the defects in Kennedy reference discussed above. Rather, Turnblad is asserted to teach treating seeds with insecticides. In particular, as discussed above, although Turnblad generally relates to coating seeds with insecticides, Turnblad does not teach any seed blend.

Therefore the rejection is believed moot and thus withdrawal of the rejection is respectfully requested.

**G. Conclusion**

In light of the foregoing, Applicants submit that the case is in condition for allowance, and an early indication to that effect is earnestly solicited.

The examiner is invited to contact the undersigned (214) 259-0931 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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